

valleys. Of still more general interest is the paper on some instances of moderate glacial erosion (*Journal of Geology*, vol. xiii., 1905, p. 160), with its examples of granite boulders lying in a sand derived from their own decay, and left undisturbed by the passage of an ice-sheet over them. The remarkable variations in the intensity of glacial erosion recorded by Dr. Ampferer from the valley of the Inn (NATURE, vol. lxxi., p. 236) might be cited in support of the author's observations.

The sixth volume of *Spelunca* is to be devoted to a review and bibliography, by M. E. A. Martel, of all papers on caves published so far in the twentieth century. The first part, issued in June, 1905, covers the papers dealing with France, and the enthusiastic author has spared no pains in making a series of complete and valuable abstracts. The result is a readable work, full of attraction for the geographer as well as the geologist, in which M. Martel devotes most of his own energies to the tracing out of the courses of underground streams.

In the *Geological Magazine* for 1905, Dr. Francis Baron Nopesa has begun a study of the remains of British dinosaurs, preserved in the collections of the British Museum at South Kensington. He shows that some crocodilian remains are mingled in the rock with those of Polacanthus. The remarkable bony dermal armour and the general skeleton of this dinosaur are figured, and the inflexible union of the lumbar vertebræ is pointed out as a unique feature in this group. The author is, indeed, led to style Polacanthus a sort of glyptodon among dinosaurs.

G. A. J. C.

THE FORTHCOMING INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY.

THE sixth International Congress of Applied Chemistry, already mentioned in NATURE (this vol., pp. 322 and 421), will be opened at Rome on April 26 by H.M. the King of Italy. The work of the congress is divided into eleven sections, and in each section an extensive programme has already been organised. Many of the most eminent chemists of Europe and America have promised to attend and deliver papers. Sir Wm. Ramsay will give an address on the purification of sewage, Prof. Moissan will lecture on the distillation of metals, and Dr. A. Frank, of Berlin, on the direct utilisation of atmospheric nitrogen in the manufacture of manures and chemical products. Among the numerous papers which have been received by the committee of the congress, the following may be noticed as possessing general scientific interest:—

Section ii.—The extraction of thorium and cerium from the monazite sands, and their utilisation in Welsbach mantles, by Prof. F. Garelli and G. A. Barbieri.

Section iii. (metallurgy).—The actual state and the future of thermoelectric metallurgy, especially with regard to steel, by Major E. Stassano; report on the state of metallurgy in France, by the Comité des Forges de France.

Section vii. (agricultural chemistry).—Chemical changes during the assimilation of nitrogen by bacteria, by Dr. J. Stoklasa; the significance of the bacterial examination of soils, by Prof. Remy.

Section viii. (hygiene and medical chemistry).—The value of inulin as food in glycosuria, by Prof. C. Ulpiani; our present knowledge of the fats from the standpoint of physiological chemistry, by Dr. A. Jolles; inosuria, by Dr. Meilliére.

Section x. (electrochemistry and physical chemistry).—This section is represented by more papers than any of the other sections. The following may be mentioned:—Certain cases of hydrolysis, by Prof. Veley; the van 't Hoff-Raoult formula, by Prof. W. D. Bancroft; isomorphism and solid solutions, by Prof. Bruni; electrochemistry of non-aqueous solutions, by Prof. Carrara; relations between proteids and electrolytes, by Prof. Galeotti; action of catalysts in the Deacon process for manufacturing chlorine, by Prof. G. M. Levi; silicide of carbon and the calcium carbide industry in France, by Prof. Moissan; catalysis by common metals, by Prof. Sabatier; chemistry of colloids, by Prof. Beckhold; amphoteric elements, by Prof. Le Blanc; toxins and anti-toxins, by Prof. Ehrlich; solid polyiodides of the alkali metals, by Prof. Abegg;

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dissociation of fused salts, fused silicates, and glasses, by Prof. Doelter.

The Italian State railways have granted to the members of the congress and their ladies a reduction of about 60 per cent. on the price of an ordinary railway ticket from the frontier to Rome. On their arrival in Rome members of the congress will receive from the committee a book of coupons, which will enable them to obtain at any station tickets at fares reduced by 40 per cent. to 60 per cent., according to the length of the journey. These tickets are available from April 26 until June 11, so that members of the congress may have the opportunity of visiting the International Exhibition at Milan. The subscription fee for membership of the congress is 20 lire for gentlemen and 15 lire for ladies. A special ladies' committee has been formed to receive foreign ladies with the purpose of making their stay in Rome as pleasant as possible.

All inquiries should be addressed to the bureau of the congress, 89 Via Panisperna, Rome

PHYSICAL CONDITION OF CHILDREN IN ELEMENTARY SCHOOLS.¹

THE physical condition of those who are about to enter on active service in the affairs of life, and whose energy is the chief of the national assets, is certainly a matter of great national importance. Every effort is justified in producing as effective a working community as is possible, and Dr. Kerr's report affords welcome evidence of the increasing concern with which those who direct education are regarding the physical conditions of child-life.

During the period dealt with in this report a limited investigation was made of the conditions of some 3500 of the girls and boys attending the Council's schools, and very striking were the results obtained. It was found that some 42 per cent. of these possessed insufficient clothing to retain animal heat, and therefore stood in urgent need of help in this direction; it is not surprising to find that these children were below the average weight of the school for their age; 45 per cent. of those examined had dirty clothes and bodies, and about one-quarter of these were in a verminous condition; here again these children fell distinctly short of the average age weight. The above results tend to show, perhaps, no more than the fact of poverty, although the excessive shortage of weight in the worst clad class of scholars suggests that insufficiency of clothing is a definite factor in producing malnutrition, the insufficient food energy being first taxed to keep up the animal heat.

The greatest effect upon the life capital of the population is produced by the infantile mortality, which in some years actually kills off during the first year one in five of all children born; the question naturally arises, what is its effect upon the survivors? Does the adverse environment which slaughters one in five have a maiming effect upon those left? Dr. Kerr's investigations indicate that the children born in a year when infantile mortality is low show an increased physique, and those born in the years of high infantile mortality show a decreased physique. It appears, therefore, that in the years of high infantile mortality the conditions to which one in five or six of the children born are sacrificed have a maiming effect upon the other four or five.

The examination of the teeth of some 1500 school children demonstrated that, in the case of the boys, some 90 per cent. had caries, and 70 per cent. to a serious extent. Only the boys who had insufficient grinding surface were below the average in physique. It appears, therefore, that caries must be severe to produce an effect on nutrition.

As the result of an examination of the condition of the eyes, it was found that a constant number of about 10 per cent. of scholars have bad vision and it is estimated that deafness alone is probably sufficient to interfere

¹ "Report of the Education Committee of the London County Council submitting the Report of the Medical Officer (Education) for the Year ended March 31, 1905." No. 922. (London : P. S. King and Son, 1905.) Price 1s., post free, 1s. 2d.

to a considerable extent with the educational instruction of at least 5 per cent. of scholars.

The necessity for increased endeavours to obtain better physique is sufficiently obvious to anyone visiting the schools, and it is satisfactory to find that the school exercises are being improved.

Dr. Kerr deals in this report with the question of the exclusion of children from school attendance between the ages of three and five years. He appears to favour the existence of the present state of things, but in this view he will probably not receive much support from medical officers of health. Doubtless school attendance affords facilities for the spread of certain communicable diseases (70 per cent. of the infants under five who are at present admitted to the Council's schools have not yet had measles or whooping-cough), and the advantage to the child of postponing attacks from these diseases for even a year or two is so great that it offers one strong argument in favour of excluding children under five from school attendance. Dr. Kerr states that children learn more in the years three to five than they will learn in the same period at any time subsequently. But in children between three and five the reasoning from what they see and hear is very slight indeed, and in the opinion of many the child does not really stand in need of school-teaching before it reaches the age of five.

Increasing solicitude is shown in regard to the personal cleanliness of the children attending the public elementary schools, and Dr. Kerr discusses some of the problems underlying the difficult question of dealing with underfed children. The nurses working under the Council are accomplishing a highly important work of considerable educational value in examining for cases of ring-worm, vermin, and unwholesomeness, and in many cases they follow up their school work by home visits. In connection with the campaign now being carried on in favour of personal cleanliness in schools, the provision of school washing-baths, as distinct from swimming arrangements, is becoming increasingly necessary in many parts of London.

The more important facts dealing with infectious disease in this report relate to the subjects of diphtheria and measles. From the result of much observation and many carefully recorded facts, Dr. Kerr concludes that when a school becomes a source of infection it is generally found that the cases of diphtheria are connected with a class or classes in which the average age of the children is between five and eight. Rarely do cases below five or above eight become sources of infection, and never has it happened in the investigations that a class the average age of which is less than four or above ten has been found to be acting as a disseminating centre. These classes appear to become sources of infection because the children at these ages have the power of partial resistance to the onslaught of diphtheria bacilli, and a large proportion of them are capable of attending school while suffering from slight attacks. Dr. Thomas, the assistant medical officer, in a valuable report upon measles and school closure, concludes that in London at present the disease only spreads in classes under five years of age, except in certain better-class districts, and that to effect any useful purpose school closure must take place before the "first crop" falls. The old practice of waiting until the attendance fell to a certain limit was useless in arresting the spread of measles, and did absolutely no good.

STUDIES OF NATIVE TRIBES.

THE American ethnological work in the Philippines is making steady progress. The first part of vol. iv. of the publications has just appeared. It deals with Moro history, law, and religion. Mindanao and Sulu were conquered in the Middle Ages by Mohammedans, who established a new form of government and introduced a written code of laws. Previous to this there was no written history, but thenceforth the datus or chiefs kept their genealogies, and these, brief though they be, are the only sources for Moro history. Prior to the American acquisition of the islands the *tarsila* or genealogies were rigidly

kept out of sight of all foreigners and non-Mohammedans, but the Ethnological Survey has been successful in getting copies of many of them; these have now been translated, and are published in the volume before us. The Moros comprise various tribes, which differ as considerably as the Ilocano and the Igorot; the language is Malayan, but the characters employed are Arabic, which makes the work of transliteration no easy one. Some pages of the codes are published here in facsimile; the genealogies are reproduced in the ordinary form, and an exact translation of the genealogy and commentary is also given. There are introductory sections, but perhaps it would have been well to add explanatory notes to the translations in addition.

In vol. xxxix. of the Proceedings of the Royal Society of New South Wales, and, also in the Journal of the Geographical Society of Queensland for 1905, Mr. R. H. Mathews maintains (1) that Australian tribes do not practise exogamy; (2) that the eight clan tribes trace descent through the mother; and (3) that there is a cross-division, cutting through phratries and classes, in the eastern tribes. His first and second points are based on the alleged possibility of marriage with any woman of the same generation. His third point, confirmed by Dr. Howitt ("Native Tribes," p. 106 n.) in some measure, may be correct, but seems to point rather to totemic exogamy within the phratry. Mr. Mathews would do well to give (1) the names of all correspondents, and (2) actual genealogies, so that his statements can be verified. He should also explain the object of phratries and classes, if they are not regulative by marriage; success in this would greatly strengthen his case. His researches, if correct, are subversive of much that has been written of late years, but he cannot expect the anthropological world to accept his unsupported statements. If anthropology were officially recognised by the British Empire, evidence on the point would soon be forthcoming. As it is, only untrained observers are available, and much reliance cannot be placed on them.

POLONIUM AND RADIO-TELLURIUM.

SINCE the discovery of polonium—the first radio-active substance investigated by Madame Curie—much doubt has existed as to its true nature and as to its relationship with radio-tellurium, subsequently separated by Prof. Marckwald from radio-active bismuth salts. Several papers which have recently been published throw considerable light on the problem, without, however, giving to it a definite solution. Madame Curie (*Physikalische Zeitschrift*, No. 5) has determined the constant of decay characterising her "polonium," and finds that it is practically identical with that ascribed by Prof. Marckwald to his radio-tellurium; in both cases the activity falls to half its value in about 140 days, so that there can be little doubt that the two substances are identical. In discussing the chemical properties of "polonium," Madame Curie concludes that there is no ground for considering that it more closely resembles tellurium than bismuth. In No. 4 of the *Berichte* of the German Chemical Society, Prof. F. Giesel has investigated the radio-activity of a " β -polonium" which differs from the older polonium or radio-tellurium by its emitting β rays instead of α rays; the activity of this substance falls to half its value in 6-14 days. This value does not correspond with the rate of decay of any of the known degradation products of radium. Meyer and von Schweidler, on the other hand (Proceedings of the Vienna Academy of Sciences, February 1), have obtained a radio-active bismuth which appears to behave as a mixture of radium D, radium E, and radium F; but Madame Curie (*Physikalische Zeitschrift*, No. 6), in discussing this result, considers that polonium cannot be identical with radium D or radium E, but only with radium F. Closely connected with these researches must be mentioned an investigation by Prof. H. Becquerel (*Physikalische Zeitschrift*, No. 6) of some of the characters of the α rays emitted by radium, and by substances rendered active by radium.